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ABSTRACT

The Bilingual Pupil Services (BPS) Program has been operating for 11 years in 24 New York City schools. During the 1984-85 school year BPS provided bilingual instruction to 1,616 Hispanic students and (for the second year) to Chinese students of limited English proficiency (LEP) in grades one through six. BPS has two functions: providing services to LEP students through instruction in English as a second language (ESL), bilingual reading, and mathematics; and providing inservice training for paraprofessionals working with these students. This report evaluates the project at four sites serving Chinese LEP students. It provides the following information: (1) a description of the project for 1984-85; (2) a follow-up of the project's progress regarding 1983-84 recommendations; (3) an analysis of student achievement data for the Hispanic and Chinese components; and (4) recommendations. In all areas of the curriculum and at most grade levels, students demonstrated statistically significant gains in tests of reading in English, Spanish, and Chinese and in mathematics. Students exhibited excellent attendance rates running from a low of 86 percent to a high of 94 percent. (PS)

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BILINGUAL PUPIL SERVICES

1984-1985

OEA Evaluation Report

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O.E.A. Evaluation Section Report

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Grant Number: 30-00-00-01-00/21-82-5005

BILINGUAL PUPIL SERVICES

1984-1985

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A SUMMARY OF THE REPORT

The Bilingual Pupil Services (B.P.S.) Program is an E.C.I.A. Chapter I project which has been administered for eleven years by the Office of Bilingual Education of the New York City Public Schools. During the 1984-85 school year, the project continued to provide supportive bilingual instruction to 1,616 Hispanic students and (for the second year) to Chinese students of limited English proficiency (LEP) in grades one through six. These students were enrolled in 60 classes in 24 schools in 15 community school districts in the boroughs of Brooklyn, Manhattan, and the Bronx. The program's main purpose was to improve student achievement in the areas of bilingual reading that included writing and English as a second language (as part of the pre-reading phase) in Spanish/English and Chinese/English, and bilingual mathematics.

In order to accomplish this goal the project recruited, trained, placed, and supervised 60 paraprofessionals. Project staff included a project director, an assistant project director, four field instructional specialists (F.I.S.), and three administrative workers. All maintained close cooperation and coordination with participating schools and districts.

The project had a well developed and clearly articulated system to select, train, and supervise the paraprofessionals. They were in contact with field instructional specialists and received training at the school sites and at the central office. Close records of the training and supervision were maintained by all staff members.

In all areas of the curriculum -- English, Spanish, Chinese, and mathematics -- and at most grade levels, students demonstrated statistically significant gains in tests of reading in English, Spanish, and Chinese, and in mathematics. Students exhibited excellent attendance rates ranging from a low of 86 percent to a high of 94 percent attendance.

During 1984-85, 12 of the participating paraprofessionals received their baccalaureate degree as a result of their participation in the project. All are presently employed as full-time teachers.

The evaluation for 1984-85 focused primarily on a description and analysis of the four sites serving the Chinese LEP students. Interviews and observations of the project paraprofessionals at these sites revealed their sense of project mission and dedication even though the project had been in operation for only two years at these sites.

The evaluation also focused on a follow-up study of the recommendations made in the O.E.A. evaluation report of the previous program year, particularly those related to the Chinese component of the project added in 1983-84.

1983-84 Recommendations and 1984-85 Findings:

--that a field instructional specialist be hired for the project's Chinese component.

Mr. George Kwot-Kit Lee was hired for the project at the beginning of the 1984-85 school year.

--that an extensive search be conducted to acquire and adapt Chinese language materials especially in the area of reading and language arts.

Project staff are continuing to work on this recommendation. The need for more funds for the purchase of materials was a point mentioned by all the field instructional specialists;

--that a Chinese-speaking testing specialist assess all Chinese LEP students in target schools to determine their levels of proficiency in their language varieties. The results should be discussed with the paraprofessionals so that they have a clear understanding of students' needs.

During the 1984-85 school year, Chinese students were assessed for proficiency in English and their native language.

--that the language policy of target schools in the Chinese component be studied with particular attention to the frequency of native language usage for instruction.

Progress in the use of the native language for instruction in the Chinese component was reported by the director, the Chinese field instructional specialist, and the paraprofessionals who were observed and interviewed.

--that workshops on the cultural styles of both the Hispanic and Chinese peoples be conducted by B.P.S. to enhance cross-cultural understanding and the integration of the Chinese component with the total program.

In the 1984-85 school year such workshops were conducted.

Students were assessed in English reading, Spanish reading, and mathematics (in English) with the Comprehensive Test of Basic Skills (C.T.B.S.) and in Chinese reading with a test developed by Community School District 2. Quantitative analysis of student achievement data indictes that:

--In English reading, Hispanic students in grades two through six made statistically significant gains on the C.T.B.S. First graders also made gains, but they were not statistically significant. Chinese students in grades one, three, and five did not make significant gains. Those in grade four demonstrated statistically significant losses partly due to high pretest scores.

--The N.C.E. score gains in mathematics were statistically significant for Hispanic students in all grades. For Chinese students, the results were different: first, fourth, and fifth graders did not make significant gains or losses while second and third graders demonstrated significant losses.

--On the Spanish reading test, the gains were statistically significant for all but first grade.

--For the five grades which had sufficient numbers of students for analysis, results on the Chinese reading examination were statistically significant for grades three and five.

The following recommendations are offered for the project's consideration:

--the paraprofessionals and project staff might benefit from further training in computers in education;

--paraprofessionals might benefit from additional workshops together with their cooperating teachers to develop strategies for classroom management and instruction;

--there is a need for identifying an appropriate measure of language proficiency for the Chinese students in the project; and

--program staff might continue to work with teachers and paraprofessionals to examine the implementation of testing for Chinese students, and to seek further explanation for the patterns of performance observed.

TABLE OF CONTENTS

		PAGE
	OVERVIEW	1
I.	PROGRAM DESCRIPTION	3
	Program Goals and Objectives	3
	Program Organization	5
	Staffing	5
	Program Sites	10
	Procedures for District Participation	11
	Articulation Between B.P.S. Administration, School Districts, and Paraprofessionals in the Field	12
II.	PROGRAM ACTIVITIES	15
	In-Service Training	15
	Instructional Services--Chinese Component	18
III.	STUDENT ACHIEVEMENT	22
	Results for Hispanic Students	24
	Results for Chinese Students	30
IV.	CONCLUSIONS AND RECOMMENDATIONS	40

LIST OF FIGURES AND TABLES

		PAGE
Figure 1:	Organization of the Bilingual Pupil Services Project Within the Office of Bilingual Education.	6
Figure 2:	Bilingual Pupil Services Interorganizational Articulation Network.	14
Table 1:	English Reading Achievement (Hispanic Students).	27
Table 2:	Spanish Reading Achievement.	28
Table 3:	Mathematics Achievement, English Version (Hispanic Students).	29
Table 4:	Mathematics Achievement, Spanish Version (Hispanic Students).	
Table 5:	English Reading Achievement (Chinese Students).	32
Table 6:	Mathematics Achievement, English Version (Chinese Students).	33
Table 7:	Chinese Reading Achievement.	34

BILINGUAL PUPIL SERVICES (B.P.S.)

Program Location:	131 Livingston Street, Room 512 Brooklyn, New York 11201
Year of Operation:	1984-85, eleventh year
Target Population:	1,616 Limited English Proficient (LEP) E.C.I.A. Chapter I-eligible pupils in grades one to six
Target Languages:	Spanish and Chinese
Program Director:	Celia M. Delgado

OVERVIEW

Bilingual Pupil Services (B.P.S.) is a Chapter I program supervised and administered by the Office of Bilingual Education (O.B.E.) of the New York City Public Schools. During the past eleven years, its function has been two-fold: direct services to students of limited English proficiency (LEP) through instruction in English as a second language (E.S.L.), bilingual reading, and mathematics; and in-service training for the paraprofessionals working with these students.

B.P.S. served Hispanic and Chinese LEP students in 24 schools located in 15 community school districts. Sixty bilingual paraprofessionals provided instructional services to the eligible LEP students in the project. Although 1,320 pupils were scheduled to be served, the project served 1,616 pupils.

The new paraprofessionals attended sessions on educational theory and practice offered one full day per week at the central office. All paraprofessionals attended monthly workshops at the central site to discuss

issues of concern, procedures, and progress in the project. All training activities were designed to develop teaching skills, an understanding of the foundations of bilingual education, and the development of skills in the use of curricula and materials in bilingual education. In addition, four B.P.S. field instructional specialists (F.I.S.s), who supervised the paraprofessionals, conducted workshops at the districts. Finally, the paraprofessionals received release time to attend college courses leading to a bachelor's degree.

Program personnel for 1984-85 consisted of one project director, one assistant director, four field instructional specialists, and 60 paraprofessionals serving the 24 schools in Manhattan, Brooklyn, and the Bronx. These staff members and paraprofessionals coordinated and articulated activities with the participating schools through both formal and informal channels.

The purposes of the current evaluation report are: to describe the project for 1984-85; to present a follow-up of the project's progress regarding 1983-84 recommendations; to analyze student achievement data for the Hispanic and Chinese components; and to make recommendations for program consideration.

I. PROGRAM DESCRIPTION

PROGRAM GOALS AND OBJECTIVES

The primary goal of the B.P.S. project is to improve the academic performance and linguistic proficiency of Hispanic and Chinese LEP pupils in grades one through six. The project was designed to achieve this goal through a program which trains and supervises bilingual paraprofessionals who provide direct instruction to students in designated elementary school classrooms. Through a rigorous selection and retention process, structured in-service training sessions, and close on-going supervision, paraprofessionals are guided by field instructional specialists (F.I.S.) towards becoming more knowledgeable, conscientious, and effective teachers.

B.P.S. has a long-standing record of service to Hispanic LEP students who have made statistically significant gains in English and native language reading, and in mathematics. Gains made by the Chinese LEP students, although significant, were not quite as high.

In its eleven-year lifespan, over 750 B.P.S. paraprofessionals have completed their baccalaureate degrees and have become licensed bilingual teachers. The majority of them are presently teaching in the New York City public school system and some have gone on to become bilingual coordinators, assistant principals, principals, or administrators.

The B.P.S. project has as additional goals the involvement of parents in their children's eduction and the development of curricula and materials appropriate for the target population.

The specific project objectives proposed for 1984-85 were as follows:

Instructional Objectives

1. In Spanish reading, participating students will achieve a mean posttest N.C.E. score that would surpass their pretest score at the .05 level of statistical significance as measured by the Comprehensive Test of Basic Skills-Spanish (C.T.B.S.-Spanish version).

2. In Chinese reading, participating students will achieve a mean posttest N.C.E. score that would surpass their pretest score at the .05 level of statistical significance as measured by a C.S.D. 2-developed test which has been approved by the New York State Education Department.

3. In English reading, participating students will achieve a mean posttest N.C.E. score that will surpass their pretest score at an .05 level of statistical significance as measured by the Comprehensive Test of Basic Skills- English (C.T.B.S.-English version).

4. In mathematics, students will achieve a mean post-test N.C.E. score that will surpass their mean pre-test score at an .05 level of statistical significance as measured by the Comprehensive Test of Basic Skills: Mathematics in English. When necessary, translations in Spanish and Chinese will be used.

In-Service Activities

1. Sixty paraprofessionals will receive specialized training in bilingual education in areas such as: teaching reading and mathematics in grades one through six; selection, development, and evaluation of appropriate materials; E.S.L.; lesson planning; and classroom management, through an orientation session and 30 weekly five-hour sessions. In addition, monthly district-wide workshops on demonstration lessons, parental involvement, use of audio-visual equipment, and testing and evaluation will be held. This objective will be measured by an "In-Service Evaluation Form Questionnaire" to be completed semi-annually by each paraprofessional.

2. Six pedagogical staff members will participate in training sessions provided by the Office of Bilingual Education

on goals and objectives of projects; innovative trends, techniques, and methodologies for E.S.L.; bilingual reading and mathematics instruction; grouping for instruction; bilingual curriculum and materials evaluation; research in bilingual education related to evaluation and testing; methods of supervision and training; parental involvement, education law, and bilingual education. This objective will be measured by an "In-Service Evaluation Form" developed by B.P.S.

Non-Instructional Activities

1. Members of the Parents' Advisory Council (P.A.C.) and other program parents will receive an overview and training regarding Chapter I guidelines, objectives of B.P.S., coordination activities, and roles and responsibilities of program participants, staff, and the P.A.C. Council as measured by participants' comments and suggestions as to effectiveness of program and training.

In addition to these, B.P.S. aimed at developing in-service training materials and locating and developing Chinese language materials for this component.

PROGRAM ORGANIZATION

The Bilingual Pupil Services program is part of the Office of Bilingual Education which is a central administrative unit within the New York City Public Schools system.

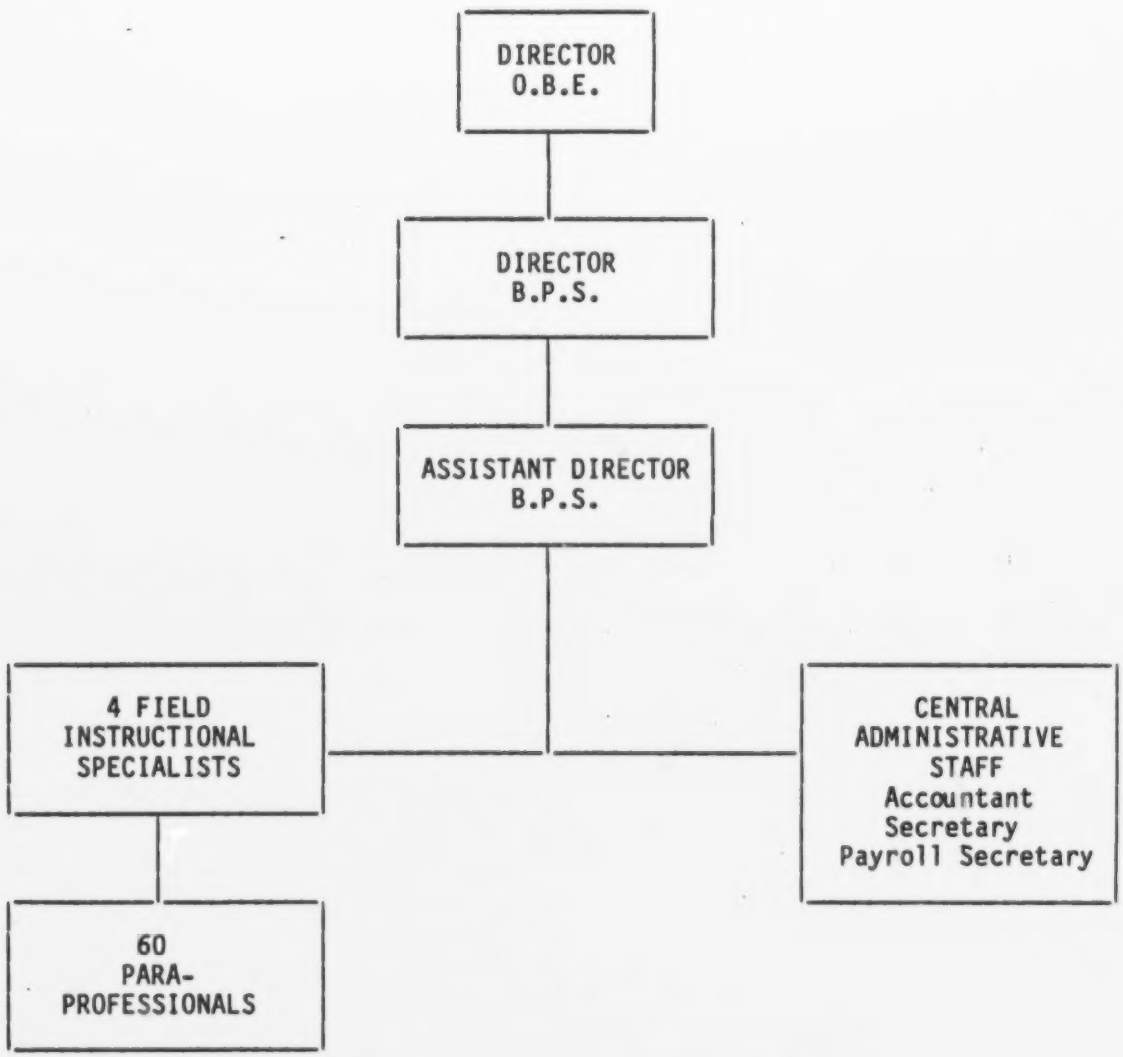
Figure 1 presents the organizational structure of B.P.S.

STAFFING

The B.P.S. staff for 1984-85 consisted of one project director, one assistant director, four F.I.S.s, and 60 paraprofessionals. Following are the responsibilities and characteristics of the B.P.S. staff.

FIGURE 1

Organization of the Bilingual Pupil Services Project
Within the Office of Bilingual Education



Project Director

The director was responsible for the overall administration, coordination, and supervision of the project components. The director has held this position for six years and has been with the project since its inception. She is Spanish/English bilingual, holds an M.S. degree, is certified as an educational administrator and supervisor, and has 16 years of combined teaching and supervisory experience. She functioned as program liaison with state and city officials and evaluators. She also participated in all in-service training activities conducted this year, and made numerous site visits to schools both for articulation and monitoring purposes.

In collaboration with the assistant director, she supervised each F.I.S. through on-going meetings. Supervision also involved monitoring daily logs of activities, a weekly projection chart of activities, a weekly summary of field visits, and a paraprofessional evaluation checklist.

Assistant Director

The assistant director was responsible for direct supervision of the field instructional specialists, clerical staff in the central office, and 60 paraprofessionals. She coordinated and supervised all of the in-service paraprofessional training activities, the parent workshops, and student testing. She planned activities with program staff, reviewed documentation of activities conducted, evaluated staff performance on-site, and informed the director of program progress and needs. The assistant aided the director in the overall administration and supervision of all the project components. She is also Spanish/English bilingual.

Field Instructional Specialists (F.I.S.)

Three field instructional specialists are Spanish/English bilingual, tenured teachers with master's degrees, and have at least five years of teaching experience. The fourth F.I.S. is Chinese and has similar credentials and experience.

During the 1984-85 academic year, the four F.I.S.s supervised the program's sixty paraprofessionals. Their duties included: planning and coordinating workshops, developing and distributing instructional materials, monitoring all record-keeping, and serving as liaisons with district and school personnel.

According to the project director, the record-keeping tasks for the four F.I.S.s are intricate but crucial to project accountability. In order to be informed of the activities, concerns, and progress of the paraprofessionals placed throughout the extensive territory covered by B.P.S., the F.I.S.s make daily log entries which are checked weekly by the project director. The logs also serve as a record of B.P.S. activities for E.C.I.A. Chapter I and the Office of Bilingual Education.

Supportive Services Staff

In addition to the administrative and instructional personnel, the B.P.S. staff included one bilingual stenographer/secretary, one accountant, and one bilingual office associate who handled the general clerical work and the paraprofessional payroll.

Paraprofessionals

B.P.S. paraprofessionals were screened with a short-answer test in English, and compositions and interviews in English and either Spanish or Chinese. Their college transcripts were also reviewed. Candidates with at least 60 colleges credits who showed commitment and ability to teach LEP students were selected and placed in one of the target schools. After one year in the program, paraprofessionals could request a change in school and/or grade level. If at all possible, the administration of B.P.S. placed them according to their choices.

Each paraprofessional was assigned to work with a bilingual teacher. They taught reading and mathematics bilingually as well as E.S.L. to Hispanic and Chinese LEP students at the 21 sites and to Chinese LEP students at three sites. They usually worked with small groups in a designated area of the room. Each paraprofessional taught a maximum of 22 pupils daily; students were assigned to them in groups of four to eight. Although daily instructional routines varied, the typical paraprofessional assignment included teaching reading, writing skills, mathematics, and E.S.L. (as part of the prereading phase). They were also responsible for attendance taking, and pre/posttesting students with the C.T.B.S. (Spanish and English versions) and the C.S.D. 2 Chinese language arts test (for Chinese-speaking students only).

PROGRAM SITES

The B.P.S. project placed a minimum of two full-time paraprofessionals in each of the following schools in 1984-85:

Borough	District	School	Language
Manhattan	2	P.S. 1, P.S. 2, P.S. 130	Chinese
Manhattan	3	P.S. 145, P.S. 165	Spanish
Manhattan	4	P.S. 155	Spanish
Manhattan	6	P.S. 98, P.S. 28, P.S. 192	Spanish
Bronx	7	P.S. 25, P.S. 65	Spanish
Bronx	8	P.S. 60, P.S. 130	Spanish
Bronx	9	P.S. 90, P.S. 114	Spanish
Bronx	10	P.S. 79, P.S. 205	Spanish
Bronx	12	P.S. 77,	Spanish
Brooklyn	14	P.S. 120	Spanish
Brooklyn	15	P.S. 1	Spanish
Brooklyn	24	P.S. 143	Spanish
Brooklyn	30	P.S. 92	Spanish
Brooklyn	23	P.S. 155	Spanish
Brooklyn	32	P.S. 116	Spanish

The sites were chosen based on the following criteria:

1. the school was a Chapter I school with a bilingual program in existence for more than one year;

2. the school had a high concentration of LEP pupils of either Hispanic or Chinese background;

3. the school indicated no duplication of services (i.e., Title VII) for program-eligible pupils;

4. the targeted pupils had scored below the twenty-first percentile on the Language Assessment Battery (LAB) and below grade norms in reading and mathematics;

5. the teachers and principals showed a willingness to comply with paraprofessionals' need for release time to attend college courses and required B.P.S. in-service training;

6. the schools and classrooms indicated the greatest need for B.P.S. services.

PROCEDURES FOR DISTRICT PARTICIPATION

A formal request must be submitted by the school principal for participation in the B.P.S. project. The request must be accompanied by the district superintendent's and bilingual coordinator's recommendation for each school's participation. Upon receiving the request, the B.P.S. program administration verifies eligibility based on the aforementioned criteria, and then meets with the district personnel and principals of selected sites to discuss project goals, paraprofessional roles, and project requirements.

Actual classroom placements are based on a joint decision made by the school principal, bilingual coordinator, and B.P.S. staff. Once placements are made, B.P.S. staff make periodic visits to sites early in the academic year to ascertain whether the placements are appropriate and are in accordance with project requirements and goals. If problems should occur during the year, the B.P.S. project director negotiates a change with the school principal. However, the director stated that rarely has there been a need to change the placement of a paraprofessional unless the school changes in student characteristics and needs.

It appears that since the districts receive B.P.S. services at no cost, and B.P.S. has a good reputation, the districts are eager to have the paraprofessionals and to place them with teachers who would serve as good role models. After one year of receiving B.P.S. services, school principals generally submit a letter requesting continuation of the project and stipulating how many paraprofessionals are needed.

ARTICULATION BETWEEN B.P.S. ADMINISTRATION, SCHOOL DISTRICTS, AND PARA-PROFESSIONALS IN THE FIELD

Articulation activities between B.P.S. and personnel in 24 different schools in 15 New York City schools districts are basically of two types. The first type of articulation activity entails communication with the paraprofessionals. The four F.I.S.s devote approximately 75 percent of their time to supervising and assisting paraprofessionals on-site in teaching strategies, lesson planning, curriculum, functioning within the school, and record-keeping. The B.P.S. director devotes approximately 40 percent of her time to field visits. The assistant director is responsible for supervising the F.I.S.s in their field work and devotes approximately 50 percent of her time to field visits.

The second type of articulation activity entails communicating with site administrators and teachers regarding the project's objectives, accomplishments, needs, and responding to the districts' requests. Communication occurs via telephone, letters, annoucements, agenda for in-service activities, copies of proposals, and through meetings between program and school administrators.

During the year, the project also conducted two roundtable discussions, one for parents and one for administrators, to identify both the positive aspects of B.P.S. services and needs for improvement.

Principals and coordinators indicated that staff development for paraprofessionals has been excellent, and that the project is efficient, well-organized, and crucial for the success of LEP students. A few administrators expressed a need for more flexibility in paraprofessionals'

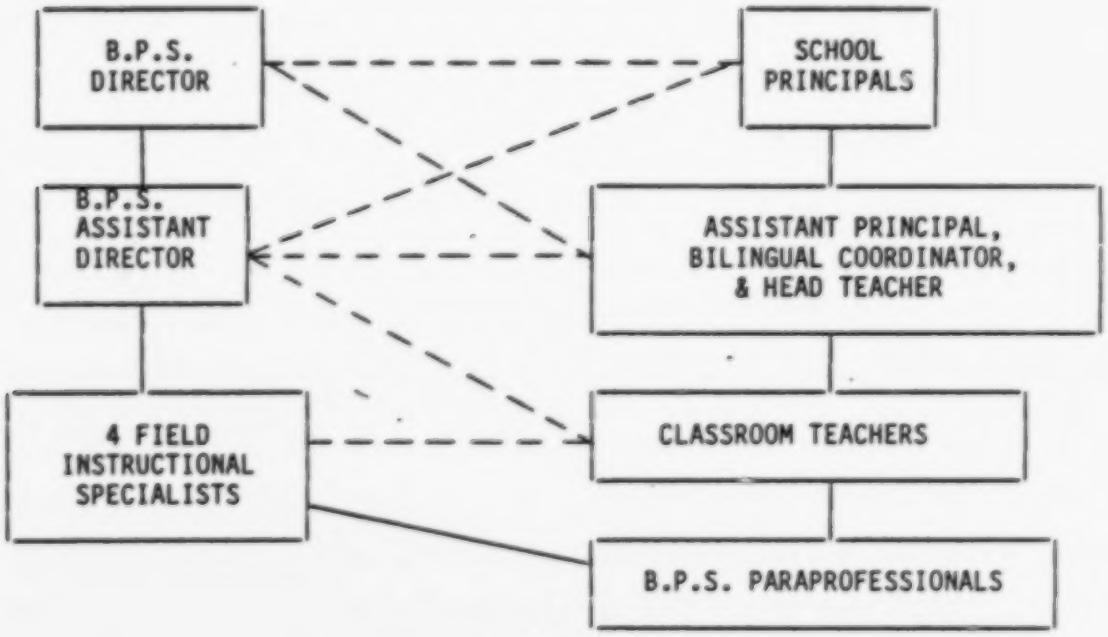
assignments. However, the B.P.S. director explained that while the project wished to cooperate with individual site needs, strict requirements were necessary to ensure the quality of training and the optimal use of the paraprofessionals for instruction. Most administrators agreed that B.P.S. guidelines regarding the paraprofessionals' role were responsible for the consistency, progress, and success they encountered.

Finally, B.P.S. collaborated with other resource and training units within the community school districts, and with agencies involved in providing training workshops and conferences for the bilingual educator (for details on types of activities, see section on in-service objectives).

Figure 2 presents the articulation network for the B.P.S. project.

FIGURE 2

Bilingual Pupil Services Interorganizational Articulation Network



II. PROGRAM ACTIVITIES

This section describes the two major activities during 1984-85: in-service training for paraprofessionals and direct instructional services to LEP students. For the most recent comprehensive analysis of the B.P.S. project, refer to the O.E.E. Evaluation Report of February 1984, Instructional Component, pp. 22-28 or to prior O.E.E. reports on this project.

IN-SERVICE TRAINING

Data concerning the in-service component of B.P.S. for 1984-85 have been aggregated from information presented in the program proposal, a project-developed document entitled The Paraprofessional Manual, information provided by the B.P.S. director and staff, an observation of one in-service workshop; and an informal interview with the workshop participants.

The primary type of in-service training activity for new paraprofessionals consists of weekly, six-hour sessions which cover a number of topics including: methods and techniques of teaching reading and mathematics in the native and second languages, grades one through six; methods and techniques of teaching E.S.L.; and selection, evaluation, and development of reading, E.S.L., and mathematics materials for use in the bilingual classroom.

The F.I.S.s monitor the paraprofessionals' performance to ascertain the application of methods and techniques. They use a form to evaluate paraprofessionals' performance on the four segments of the in-service program -- Teaching Reading to the Bilingual Learner, Teaching Mathematics to the Bilingual Learner, Teaching E.S.L./Writing to the Bilingual

Learner, and Bilingual Materials Development. The paraprofessionals use a form to evaluate the services they receive: presentations, materials, and courses.

Another type of in-service training activity consists of monthly district-wide workshops held in the districts by the F.I.S.s or at the central board by the B.P.S. director, staff, and outside consultants. Activities included demonstrations by paraprofessionals and the F.I.S.s on approaches used in bilingual classrooms and learning centers. They also include presentations on evaluating materials, maintaining pupil records, testing and evaluation, involving parents, and using audio-visual equipment in the classrooms. There is often overlap between the in-service weekly sessions and monthly workshops to ensure integration of the material covered and to promote applications in classrooms.

The F.I.S.s maintain extensive records, including: evaluations of paraprofessionals' interpersonal relations, evidence of commitment, and professionals' potential; daily and weekly lesson plans in E.S.L., reading, and mathematics; evaluation of lesson objectives, motivation, development, questioning, materials, and follow-up; student test data, pupil profiles; assessment of target students' language dominance; weekly class schedules; and logs for entries on individual students. The classroom teachers evaluate the paraprofessionals on the same areas as the F.I.S.s, and there are weekly individual supervisory conferences between the classroom teachers and their B.P.S. paraprofessionals.

In spite of occasional complaints on the part of paraprofessionals about the amount of paperwork required of them, their overall perception

was that these procedures have contributed to their training and professional development as future teachers.

INSTRUCTIONAL SERVICES - CHINESE COMPONENT

During 1984-85, the B.P.S. project added two new sites, P.S. 1 and P.S. 126 in the Chinatown area of C.S.D. 1 on the Lower East Side of Manhattan. The schools are located in an area of high mobility due to immigration patterns. The school principal pointed out that one of the major problems is the linguistic heterogeneity of Chinese students who come from areas where Cantonese, Mandarin, or Fukienese are spoken. Programming, curriculum planning, staffing and developing materials for these groups are extremely difficult.

In contrast to many Spanish/English bilingual programs, the Chinese programs tend to use an E.S.L. approach. One principal suggested that the home plays the major role in maintaining the native language, while the school is perceived by the community as a vehicle for preparing students in English language skills. Although most of the paraprofessionals agreed with this viewpoint, they stated that in working directly with the LEP students in a classroom setting, they realized the importance of using the child's native language for instruction.

One difficulty raised by the principals was the amount of time paraprofessionals were required to be off-site for workshops, coursework, and other activities. They perceived a lack of flexibility in the paraprofessionals' role in the school, although they admitted that they understood the B.P.S. guidelines and expressed their satisfaction with the quality and service provided by the project.

III. STUDENT ACHIEVEMENT

For Hispanic students, academic performance was assessed by using standardized tests in English reading, Spanish reading, and mathematics. The Comprehensive Test of Basic Skills (C.T.B.S.), form S, measured achievement in these areas. The mathematics portion of the test, available in Spanish and English, was given in the Hispanic students' dominant language as determined by teachers. All students were tested on grade level. Raw scores were converted to Normal Curve Equivalent (N.C.E.) scores, which are normalized standard scores. They have the advantage of forming an equal interval scale so that scores and gains can be averaged. For the norming population, N.C.E.s have a mean of 50, a standard deviation of approximately 20, and a range from 1 to 99. Thus scores can be compared to the norming population. Because N.C.E.s are based on the norm group's scores, a raw score gain, which usually results in grade equivalent gains, can result in a decline in N.C.E.s. There are several reasons for this. Several consecutive raw scores may correspond to the same N.C.E., especially at the upper and lower ends of the scale. The norm group is also making raw score (and grade equivalent) gains, so that students must gain as much as the norm group to stay at the same N.C.E. Therefore, an N.C.E. gain, no matter how small, indicates improvement while a decline in N.C.E.s does not necessarily mean that a student is not making progress.

The program's instructional objectives (see page 4) called for post-test improvement at the .05 level of statistical significance (when the

probability that a gain is occurring by chance is less than five percent). Statistical significance was assessed by a correlated t-test.

Tables 1, 2, 3, and 4 present t-tests on N.C.E. scores for Hispanic students who took the C.T.B.S. Results for Chinese pupils were analyzed separately. Tables 5 and 6 present the English and mathematics test results for Chinese students in N.C.E. scores, and Table 7 presents the native language reading in raw scores.

RESULTS FOR HISPANIC STUDENTS

Examination of Table 1 indicates that Hispanic students are making large N.C.E. gains in English. A gain in N.C.E.s, no matter how small, indicates improvement relative to the norm group; a gain of seven N.C.E.s in Chapter I programs has been considered exemplary. These students' gains range from 3.7 to 13.3 and are statistically significant for grades two through six.

The largest gains were achieved by second-, third-, and sixth-grade students, respectively. Students in these grades gained greater than 11 N.C.E.s. Students in the fourth and fifth grades gained 8.8 and 6.3 N.C.E.s, respectively. First-grade students also made gains in N.C.E.s (3.7), but their gains were not statistically significant. This was largely due to the fact that there were only 15 students in first grade, and it is very difficult to obtain statistical significance for groups smaller than 30. Nevertheless, all students gained N.C.E.s between pre- and post-testing, indicating they are improving in English reading at a greater rate relative to the norm group.

TABLE 1

English Reading Achievement (Hispanic Students)

Significance of the Total Normal Curve Equivalent (N.C.E.) Differences Between Initial and Final Test Scores on the C.T.B.S., Form S, by Grade and Test Level

			Pre-Test		Post-Test		Difference	
Level	Grade	N	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
B	1	15	30.5	20.5	34.1	17.5	3.7	11.1
C	2	234	28.5	18.8	39.9	16.8	11.5**	17.8
1	3	228	21.6	13.3	34.9	13.8	13.3**	15.9
1	4	225	27.1	17.1	35.9	15.7	8.8**	15.9
2	5	220	27.1	13.2	33.4	13.4	6.3**	11.5
2	6	62	24.8	12.2	36.8	13.0	12.0**	13.2

**Statistically significant at the .01 level.

Table 2 presents the results of the C.T.B.S. Spanish reading test. The average gain was significant for all but the first grade. The native language gains were generally lower than for English except for second grade. The pattern of gains in native language for second, third, and sixth graders are generally the same as for English; these students made the largest gains. The small group of first graders showed a small loss in N.C.E.s between pre- and post-tests. However, since the group was small, it was not statistically significant.

Table 3 presents the results of the English version of the C.T.B.S. mathematics test. The N.C.E. gains were statistically significant and very impressive for all grades. The gains were extremely high (10.9 to 36.9) for all but the fifth grade (who gained only 3.8 N.C.E.s). The high pretest score (39.1) for the fifth graders may explain why their gains were smaller than the other grades. As with the English and Spanish gains in reading, the most impressive gains were among second, sixth, and third graders, respectively, who averaged 25 N.C.E. gains. Fourth and fifth grades also made great gains (11 and 4 N.C.E.s, respectively).

In the second grade, the pretest mean was one and the standard deviation was 0, indicating that all students had the same score of one at pretest. All these students made gains and the mean gain was statistically significant despite the small number of students.

TABLE 2

Spanish Reading Achievement

Significance of the Total Normal Curve Equivalent (N.C.E.) Differences Between Initial and Final Test Scores on the C.T.B.S. Espanol, Form S, by Grade and Test Level

Level	Grade	N	Pre-Test Mean	Pre-Test Standard Deviation	Post-Test Mean	Post-Test Standard Deviation	Difference Mean	Difference Standard Deviation
B	1	16	46.5	15.5	45.3	14.1	-1.2	7.3
C	2	250	36.3	24.5	49.3	19.6	13.0**	24.2
1	3	246	32.3	15.6	41.4	15.5	9.1**	15.1
1	4	248	34.9	16.0	41.2	15.6	6.3**	15.5
2	5	234	44.0	15.5	48.9	17.5	4.8**	12.7
2	6	75	37.3	14.4	44.0	14.4	6.7**	12.3

**Statistically significant at the .01 level.

TABLE 3

Mathematics Achievement (Hispanic Students)

Significance of the Total Normal Curve Equivalent (N.C.E.) Differences Between Initial and Final Test Scores on the C.T.B.S., English Version, by Grade and Test Level

			Pre-Test		Post-Test		Difference	
Level	Grade	N	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
C	2	17	1.0	0.0	37.9	20.6	36.9**	20.6
1	3	60	27.5	18.1	47.6	19.8	20.1**	16.4
1	4	96	32.9	15.5	43.8	15.9	10.9**	13.4
2	5	82	39.1	13.6	42.9	14.0	3.8**	10.1
2	6	43	26.2	21.3	47.4	17.4	21.3**	18.8

**Statistically significant at the .01 level.

TABLE 4

Mathematics Achievement (Hispanic Students)

Significance of the Total Normal Curve Equivalent (N.C.E.) Differences Between Initial and Final Test Scores on the C.T.B.S., Spanish Version by Grade and Test Level

			Pre-Test		Post-Test		Difference	
Level	Grade	N	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
C	2	224	24.9	14.3	52.7	22.2	27.7**	23.3
1	3	157	27.4	15.7	49.7	15.8	22.3**	19.0
1	4	121	32.9	17.5	44.7	16.0	11.8**	18.6
2	5	135	26.1	18.3	42.9	16.4	16.8**	19.6
2	6	23	34.2	13.5	44.4	17.9	10.2**	12.9

**Statistically significant at the .01 level.

The N.C.E. gains were statistically significant and quite large for all grades on the Spanish version of the C.T.B.S. Mathematics Test (see Table 4). Gains ranged from 10.2 to 27.7. Second and third graders made the largest gains (an average of 25 N.C.E.s), a pattern that is consistent with the scores on the English version of the test. Fifth graders also made large gains (17 N.C.E.s) followed by fourth (12 N.C.E.s) and sixth (10 N.C.E.s) graders.

The results of both versions of the mathematics test indicate that the Hispanic students are improving a great deal in this area. Despite their low pretest scores, it is impressive that their mean posttest scores approximated that of the norming population.

RESULTS FOR CHINESE STUDENTS

Chinese students were administered the C.T.B.S. English reading and mathematics tests. Chinese reading was measured by a test developed in C.S.D. 2.

Examination of Table 5 shows that fourth-grade Chinese students had a higher average N.C.E. score on pretest than on posttest, and the difference was statistically significant. The higher pretest mean for fourth grade suggests the possibility of error in testing and scoring. Gains for first, third, and fifth graders were not significant, partly due to their small numbers.

Table 6 shows the results of the C.T.B.S. mathematics test administered in English. The average pretest scores in second through fifth grades

TABLE 5

English Reading Achievement (Chinese Students)

Significance of the Total Normal Curve Equivalent (N.C.E.) Differences Between Initial and Final Test Scores on the C.T.B.S., Form S, by Grade and Test Level

			Pre-Test		Post-Test		Difference	
Level	Grade	N	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
B	1	4	17.0	11.2	18.5	3.0	1.5	8.7
1	3	14	19.9	15.9	21.4	11.0	1.5	14.4
1	4	22	28.3	10.4	22.1	12.2	-6.1*	12.1
2	5	16	21.3	7.4	20.6	9.3	- .7	8.0

*Statistically significant at the .05 level.

TABLE 6

Mathematics Achievement (Chinese Students)

Significance of the Total Normal Curve Equivalent (N.C.E.) Differences Between Initial and Final Test Scores on the C.T.B.S., English Version, by Grade and Test Level

			Pre-Test		Post-Test		Difference	
Level	Grade	N	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
B	1	20	38.4	14.3	38.1	11.9	- .3	7.9
C	2	46	62.8	26.3	55.3	20.7	-7.5*	21.7
1	3	24	68.6	16.8	59.3	19.2	-9.3**	10.5
1	4	36	54.5	17.8	51.7	13.6	-2.8	10.2
2	5	38	60.3	17.9	56.2	15.2	-4.1	13.9

*Statistically significant at the .05 level.

**Statistically significant at the .01 level.

were higher than the mean for the norming population. Second and third graders had extremely high pretest N.C.E. scores, and despite a significantly large drop, posttest means were still higher than the mean of the norming population. Losses for fourth- and fifth-grade students were relatively small and not statistically significant.

Table 7 shows the results of the Chinese reading test. The raw score gains were statistically significant for grades three and five. Mean gains were small for first and second grades. The scores of fourth graders decreased slightly from pretest to posttest; however, this difference was not statistically significant.

TABLE 7

Chinese Reading Achievement

Significance of the Total Raw Score Differences Between Initial and Final Test Scores on a C.S.D. 2-Developed Test

		Pre-Test		Post-Test		Difference	
Grade	N	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
1	20	10.1	6.2	11.1	6.4	1.0	2.6
2	47	14.8	3.0	15.4	3.4	.6	3.3
3	24	20.9	4.7	25.5	3.6	4.7**	4.2
4	36	15.1	7.3	14.7	7.7	- .4	4.7
5	38	9.9	7.2	13.5	6.4	3.6**	4.1

**Statistically significant at the .01 level.

V. CONCLUSIONS AND RECOMMENDATIONS

The 1984-85 evaluation of the Bilingual Pupil Services program showed a correspondence between the objectives proposed to E.C.I.A. Chapter I and the actual operation of the project. The information provided to the evaluation team by all project participants facilitated an understanding of the project's accomplishments and limitations. The documentation reviewed by the evaluation team was comprehensive, up-to-date, and consistent with the project's stated goals.

Interviews with those related to B.P.S. stated that this project is held in high esteem by participants, district personnel, and other units of the New York City Board of Education and the school districts. Project staff were extremely devoted to the project's mission. They expressed satisfaction with their roles in the project and with the level of success they are achieving toward meeting program objectives. The interaction observed among B.P.S. personnel in meetings, workshops, and in the classrooms was always positive, on-task, and open.

The Bilingual Pupil Services project reflects a sense of efficacy and cohesiveness which is unique for very large projects within a complex bureaucracy such as that of the New York City school system. It has maintained direct, on-going communication with the school districts, which are eager to receive B.P.S. services, and has established credibility with district and central board staff.

One outstanding feature of the B.P.S. project is its on-going self-evaluation and the staff's desire to improve its operation and services. The constant self-analysis and revision were evident at the first site

visit when the project director had already implemented recommendations from previous years' O.E.E. evaluation reports and had identified the areas of needed improvement for this year's evaluation. These were, in fact, the areas which surfaced during the 1984-85 evaluation process and which have in many cases already been acted upon by project personnel.

It is clear that most B.P.S. students are making statistically significant gains in reading in English and in their native language, as well as in mathematics. Thus, the program has achieved its primary objective. However, there are subgroups, particularly among Chinese students, whose performance on English reading and mathematics tests in English indicate gains that do not reach statistical significance or, in some cases, N.C.E. losses. These results can not be explained conclusively. However, pretest scores for these students were relatively high in mathematics, suggesting the possibility of error in test administration, scoring, or score entering. High pretest scores generally result in little or no gain.

The recommendations for the B.P.S. project have been integrated with the sections of this evaluation report where applicable and appear in summarized form below:

1. the paraprofessionals and project staff might benefit from further training in computers in education;

2. paraprofessionals might benefit from additional workshops together with their cooperating teachers to develop strategies for classroom management and instruction;

3. there is a need for identifying a more appropriate measure of language proficiency for the Chinese students in the project; and

4. program staff might continue to work with teachers and paraprofessionals to examine the implementation of testing for Chinese students, and to seek further explanation for the patterns of performance observed.